ORIGINAL

Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

In the Matter of	)	DA 96-1094
	)	
Common Carrier Bureau Seeks Further	)	CC Docket No. 96-45
Comment on Cost Models in Universal	)	
Service Notice of Proposed Rulemaking	)	

FURTHER COMMENTS ON COST MODELS

National Exchange Carrier Association, Inc.
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August 9, 1996

SUMMARY

Pursuant to the Commission's Public Notice seeking comment on the proxy models submitted in the universal service docket, CC Docket No. 96-45, NECA has conducted extensive analyses comparing proxy costs with actual cost data reported by the exchange carriers for USF purposes. NECA designed its analyses to capture both the national and distributional impacts of the proxy models.

NECA's analyses illustrate that BCM2 approximates actual cost per loop more accurately for the very largest study areas, and much less accurately for smaller study areas; that it produces a USF expense adjustment amount that rises significantly as the geographic region used to calculate the expense adjustment becomes smaller; and that it produces widely varying results depending upon which set of assumptions are used. NECA's comparison of BCM2, CPM, and Hatfield model results for the State of California produce results similar to those found in NECA's analysis of BCM2.

These analyses confirm that proxy model approaches should not to be mandated, especially for small or rural telephone companies. Necessary considerations remaining include the optimum level of disaggregation for determining model results, careful analysis of network design assumptions and engineering standards, and identification of standards by which to judge proxy models.

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FURTHER COMMENTS ON COST MODELS

I. INTRODUCTION

In the Commission's proceeding to implement section 254 of the Telecommunications Act of 1996 ("1996 Act") on universal service,[1] several parties have submitted cost models intended to identify high-cost areas and to produce benchmark cost ranges for supplying basic residential telephone service. Recently, the Commission issued a Public Notice seeking comment on two additional or revised cost models -- Bench Mark Cost Model 2 ("BCM2") and Hatfield 2.2, Release 1 ("Hatfield model") -- filed in this docket, as well as the original BCM and the Cost Proxy Model ("CPM").[2]

NECA has conducted extensive analyses comparing model-based loop investment and universal service payments to actual cost figures for the four proxy models submitted -- the BCM2,

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[1] Federal-State Joint Board on Universal Service, Notice of Proposed Rulemaking and Order Establishing Joint Board, CC Docket No. 96-45, FCC 96-93 (rel. Mar. 8, 1996).

[2] Common Carrier Bureau Seeks Further Comment on Cost Models in Universal Service Notice of Proposed Rulemaking, Public Notice, DA 96-1094 (rel. July 10, 1996).

the Hatfield model, the CPM, and in previous comments the original BCM. These analyses are described herein and their results summarized, with detailed data reports attached.

II. NECA APPROACH TO PROXY ANALYSIS

A. Overall Approach

A proxy model, like any other economic model, should have a standard by which to judge its performance. In this filing, NECA's analyses compare proxy costs with actual, historical cost data reported by the exchange carriers for USF purposes. These USF data have received years of careful scrutiny and reflect the actual deployment of the national public switched telephone network. Pending Commission adoption of some other standard, comparison to actual cost data seems the most logical approach.

NECA has evaluated the models at the national level and at various degrees of disaggregation.[3] At the national level, NECA's analysis measures the overall financial impact of using proxies to calculate the amount needed to fund universal service, using the current Universal Service Fund ("USF") algorithm as a guide. NECA's analyses also measure proxy model sensitivity by evaluating the impact of changing several assumptions contained in the original BCM, BCM2, and Hatfield models:

- Replacement of national investment-to-cost factors with study area-specific factors derived from actual USF data;
- Effects of disaggregation of service areas below the study area level on universal service funding;

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[3] National results for the BCM2 Model are described in this filing and included in the Appendices. NECA had also completed a national analysis on the original BCM. See NECA Comments at 76-82 (Oct. 10, 1995), CC Docket 80-286.

- Policy alternatives such as treating small companies differently than large companies (e.g., using the current USF rule involving a 200K loop threshold); and
- Comparing assignment of CBGs to nearest wire center with assignment of CBGs to nearest-owned wire center.

These represent only some of the many basic assumptions to which proxy models are potentially sensitive.

B. Model-Specific Analyses

NECA compared BCM2 loops, costs, and expense adjustments to actual USF data at the national level. NECA extracted the loop investment portion from the proxy models in order to compare results with loop-based actual USF data.[4] NECA also computed expense adjustment at three levels of aggregation: by census block group, by serving wire center, and by study area.

NECA used two methods to convert loop investment data computed by the proxy models into costs. The first method converts loop investment amounts to loop cost amounts using study area-specific relationships between actual loop revenue requirement and loop investment data, taken from the 1995 USF payment data set.[5] These relationships will be called study area factors (SF).[6] The second method converts proxy loop investment to loop cost using the BCM2 sponsors' national

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[4] This calculation excluded switching investment and related expenses.

[5] Universal Service Fund 1994 Submission of 1993 Study Results by the National Exchange Carrier Association, Inc. (filed Sept. 30, 1994)

[6] The USF - Study Area Factors (SF) are computed using the original view data for 1995 USF payments. Each study area's unseparated loop revenue requirement is divided by its gross loop investment to develop the factor. Each factor is multiplied by the proxy loop investment for the CBG to derive unseparated loop cost (BCM2-SF). The CBG costs are then summed to the study area level for comparison with USF data.

investment-to-cost relationships. These relationships will be called national factors (NF).[7]

Proxy loop costs and loop counts were then used to compute USF expense adjustments pursuant to Part 36 Rules.[8] NECA computed the USF expense adjustment that would be produced if exchange carriers were to report costs, as identified by BCM2, to NECA pursuant to the Commission's Part 36 rules. The expense adjustment was computed at the study area, serving wire center, and census block group levels.

NECA also analyzed the BCM2, Hatfield, and CPM for California study areas and compared loop cost results with USF data for that state. NECA continues to process data for the Hatfield model and awaits national data from the CPM sponsor. Further analyses of these models, as well as the BCM2, are continuing.

III. SUMMARY OF CURRENT RESULTS

The following tables illustrate NECA's comparison of model results to actual USF cost data. Table 1 provides the actual average cost per loop, BCM2-SF proxy cost per loop,[9] and the difference between the two for various sizes of study areas. It illustrates that BCM2-SF approximates actual

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[7] The USF - National Factor (NF) is a weighted average factor from BCM2. Each CBG's proxy loop investment is multiplied by a national average factor to get the BCM2 unseparated loop cost excluding the "other expenses" account. To add "other expenses" into loop costs, NECA allocated them between loop and switching on the basis of their shares of gross investment. (BCM2-NF).

[8] 47 C.F.R. § 36.601 et seq. Proxy loops used for expense adjustment calculations included business as well as residential loops consistent with current actual USF expense adjustment calculations.

[9] BCM2-SF data were selected for table summarization since they are based on study area investment-to-cost relationships similar to the actual USF cost data to which they are being compared.

cost per loop most accurately for the very largest study areas, and much less accurately for smaller study areas. This increased variance pattern for smaller study areas occurs with the BCM2-NF as well. For the full data reports by study area, see Appendix A for BCM2-SF data and Appendix B for BCM2-NF data.[10]

TABLE 1 - BCM2-SF Cost Per Loop Comparisons
(USF Study Area Cost Factors)

Study Area Line Size	Actual Cost Per Loop	Proxy Cost Per Loop	Average Difference		Range of Study Area Differences	
			Dollars	Percentage	Lowest %	Highest %
<5K	$378	$800	$422	116%	-90%	728%
5K-10K	$329	$610	$281	85%	-67%	321%
10K-25K	$331	$547	$216	65%	-25%	301%
25K-50K	$335	$468	$132	39%	-21%	228%
50K-200K	$332	$446	$114	34%	-26%	94%
200K-1M	$250	$310	$60	24%	-35%	130%
>1M	$229	$225	-$4	-2%	-40%	29%
National Total[11]	$242	$277	$35	14%	-90%	728%

Table 2, below, illustrates the effects on support funding of disaggregating model calculations to smaller service areas. It summarizes NECA's findings for the BCM2-SF when loop cost data produced by the model are run through the USF algorithm at three levels of disaggregation (study area, serving wire center and census block group). The most conspicuous

[10] Supporting data for Tables 1 - 4 are all contained in these appendices.

[11] NECA's data analysis currently reflects 1386 out of 1439 study areas. Missing study areas are due to mismatches which are under investigation.

observation is that the expense adjustment amount produced by the model rises significantly as the geographic region used to calculate the adjustment becomes smaller. For example, moving from proxy study area level to proxy CBG level increases the funding by more than $4 billion. The reason is simple - there is less averaging of high and low cost areas as disaggregation moves toward smaller service areas

TABLE 2 - Effects of Disaggregation on BCM2-SF Expense Adjustment
(USF Study Area Cost Factors; Current Part 36 Rules Applied)

Algorithm	Actual Data at Study Area Level	Proxy Data at Study Area Level	Proxy Data at Serving Wire Center Level	Proxy Data at Census Block Group Level
Service Area	$.690B	$2.441B	$5.350B	$6.739B

Table 3, below, illustrates the effects of different rule treatment for large and small companies using the current 200K-loop threshold rule as an example. For the "study area" data results, the USF algorithm applicable to study areas with more than 200K loops is applied to all service areas that exist within study areas having more than 200K loops. For the "Service Area" data results, the Part 36 200K algorithm is applied only when the loop count of the service area itself (i.e., study area, serving wire center or census block group) exceeds 200K loops.[12] As the table reveals, the effects of applying different formulas to different size companies can be significant when disaggregating to smaller service areas (e.g., over a $2 billion difference in funding at the CBG level)

[12] Below the study area level there are few if any service areas that would exceed 200K loops.

TABLE 3 - Effects of 200K Rule on BCM2-SF Expense Adjustment
(USF Study Area Cost Factors; Current Part 36 Rules Applied at Study and Service Areas)

Algorithm	Actual Data at Study Area Level	Proxy Data at Study Area Level	Proxy Data at Serving Wire Center Level	Proxy Data at Census Block Group Level
Study Area	$.690B	$2.441B	$3.660B	$4.596B
Service Area	$.690B	$2.441B	$5.350B	$6.739B

Table 4, below, illustrates that cost per loop and expense adjustment estimates are sensitive to whether study area or national investment-to-cost factors are used. The table shows that substantially different results occur depending on which set of assumptions are used to compute cost per loop and expense adjustment levels.

TABLE 4 - BCM2 Effects of Cost Conversions Factors
(Current Part 36 Rules Applied at Service Area)

Source of Factors	National Cost Per Loop	Expense Adjustment at CBG
National Factors (BCM2-NF)	$316.3	$5.110B
Study Area Factors (BCM2-SF)	$276.5	$6.739B

Table 5, below, compares model-based loops and cost per loop with actual cost data for all three models for all California study areas.[13] These comparisons were done at the study area level only for the state of California and are consistent with NECA's analysis of the BCM2 which shows

[13] NECA has been able to complete only very limited analysis of the CPM and Hatfield models to date. National data for CPM is not yet available. The data in Table 5 for CPM was supplied by its sponsor. The Hatfield data analysis is still in progress and has required a number of complex assumptions. The Hatfield model is difficult to process on a national basis in its present form.

significant variance between various proxy model and actual loop cost calculations.

TABLE 5 - Cost Per Loop Comparisons (all models for California)

Loop Size	USF Cost/Loop	BCM2-SF Cost/Loop	BCM2-NF Cost/Loop	CPM Cost/Loop	Hatfield Cost/Loop
Study Areas <200K	$464.44	$336.18	$446.70	$569.24	$356.22
Study Areas >200K	$208.89	$191.24	$248.90	$274.74	$165.91
Total State	$212.35	$194.24	$252.03	$279.58	$169.34

NECA has also evaluated the effects of assigning CBGs to the nearest wire center versus the nearest-owned wire center [14] In aggregate, this issue has little effect on national results. It can, however, produce dramatic shifts in the costs and support for individual study areas, especially small study areas. These differences partially explain the variances between actual cost and proxy data shown in Appendices A and B

IV. CONCLUSION

Ongoing NECA analyses in this proceeding continue to reveal variances between proxy results and actual USF data which increase significantly for study areas serving smaller numbers of lines. Changes to the most recent models have not ameliorated this trend. NECA analyses also continue

[14] In determining an adequate network design approach, engineering standards must be developed. The models do not construct a completely hypothetical network. Instead, they use the switches in place as the basis for designing the feeder and distribution plant. Considering the use of existing switches, the question is whether subscribers should be assigned to the closest owned switch, the closest switch, or the actual switch being used to serve the subscriber. For example, BCM2 uses the closest switch to build its network but this ignores the realities of study area boundaries, state lines and geographic considerations (rivers, mountains, etc)

to reveal significant increases to the USF expense adjustment totals due to disaggregating model calculations to smaller geographic regions.

NECA's analysis was necessarily limited. Comparisons were performed nationwide with respect to the BCM2 model, and for California data with respect to the BCM2, Hatfield and CPM models. A more complete analysis would require additional time and the necessary additional nationwide data, and would also require resolution of a number of open issues. In particular, consideration needs to be given to an optimum level of disaggregation for defining service areas used in proxy model calculations. Among many other factors, this analysis must take into account administrative complexity associated with more "granular" units, accuracy of available data, and the timing of data updates.

Numerous other technical issues also remain to be addressed. For example, the models proposed in this docket take varying approaches with respect to network design assumptions and engineering standards. Careful analysis of these assumptions is necessary to assure that the models reflect actual cost characteristics and are technologically neutral.

A similar problem emerges when trying to convert proxy model investment to annual costs. Proxy investment-to-cost conversion factors are used. The issue is whether it is more accurate from a policy perspective to use national or study area specific cost conversion factors. Results of NECA's analysis shows substantial differences in fund levels as a result of this choice.

Finally, standards for evaluating the proxy models, if not actual USF costs, must be developed and intended use(s) identified. So far, it is unclear whether these models will be used as the basis for universal service funding, disaggregation of study area costs or some combination of these or other uses. Resolution of these issues would permit more focused analysis and evaluation of model results.

NECA's analysis strongly supports its earlier findings that proxy model approaches should not be applied on a mandatory basis to all companies, and in particular, should not be applied to small rural telephone companies.[15] This conclusion is supported by sponsors of the models under study in this docket.[16] NECA continues to recommend that use of proxy models such as the BCM2 should not be made mandatory

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August 9, 1996

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[15] See NECA Comments at 6 (April 12, 1996), CC Docket 96-45.

[16] NYNEX, for example, states that under its proposal, "the proxy model would be limited to price cap carriers . . ." NYNEX at 34 (Aug. 2, 1996), CC Docket 96-45. This was because the proxy model "may not accurately portray the costs of a carrier that serves only a limited or a smaller area, and this could cause financial harm to small carriers. For rate of return carriers . . . the Commission should use actual study area costs to develop high cost assistance." NYNEX at 10-11 (April 12, 1996), CC Docket 96-45. Pacific Telesis states that there is "tremendous variation" in individual companies' cost structures that relate to the companies' line size, and that the universal service system should account for this variation. Pacific Telesis at 39 (Aug. 2, 1996), CC Docket 96-45. See also, U S WEST at 20 (Aug. 2, 1996), CC Docket 96-45; AT&T at 24, 33-34 (Aug. 2, 1996), CC Docket 96-45.

CERTIFICATE OF SERVICE

I hereby certify that copies of the foregoing Comments were served this 9th day of August, 1996, by mailing copies thereof by United States Mail, first class postage paid, or hand delivery, to the persons listed below.

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Perry Goldschein

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Appendix A

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ANALYSES USING BCM2 RESULTS

*** NECA WORK IN PROGRESS ***

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Column 5. Universal Service Fund Unseparated Revenue Requirement. Original View USF data for 1995 payout.

Column 6. Proxy Unseparated Revenue Requirement is developed from BCM2 loop investment. The proxy loop investment is multiplied times a study area specific Carrying Factor. Cost company Carrying Factors are developed from USF data. The factor is computed by dividing each study areas unseparated revenue requirement by its loop investment. A carrying factor of .35 is used for average schedule companies.

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Column 11. Actual Expense Adjustment. USF Original View Expense Adjustment for 1995 payout.

Column 12. Proxy Expense Adjustment. The study area proxy cost per loop is used in the current Part 36 USF Expense Adjustment algorithm.

*** NECA WORK IN PROGRESS ***

A

COMPARISON OF LOOP BCM2 STUDY AREA FACTOR
TO ACTUAL USF DATA - 1995 PAYOUT
FIELDS: LOOPS, COSTS & USF EXPENSE ADJUSTMENTS
($000)

OBS	ST-ID	USF LOOPS	PROXY LOOPS	DIFF(PX-ACT)	USF UNSEPP RR	PROXY UNSEPP RR	DIFF(PX-ACT)	ACTUAL CPL	PROXY CPL	DIFF(PX-ACT)	ACTUAL EXP ADJ	PROXY EXP ADJ	DIFF (PX-ACT)
1	AK	284,917	307,834	22,917	$109,187	$143,498	$34,311	$383.22	$458.88	$75.65	$27,548	$46,678	$19,130
2	AL	2,072,664	2,292,274	219,610	$561,803	$837,271	$275,468	$271.05	$343.05	$72.00	$22,429	$91,422	$68,993
3	AR	1,161,241	1,378,771	217,530	$389,407	$591,818	$202,411	$335.34	$409.03	$73.69	$36,502	$104,267	$67,765
4	AZ	2,191,208	2,245,325	54,117	$565,291	$763,606	$198,315	$257.98	$323.31	$65.32	$14,701	$58,584	$43,884
5	CA	18,887,392	19,173,060	285,668	$4,010,713	$3,724,124	$-286,589	$212.35	$185.88	$-26.47	$43,602	$59,808	$16,206
6	CO	2,191,528	2,213,890	22,362	$488,957	$588,914	$99,957	$223.11	$243.55	$20.44	$4,174	$35,462	$31,288
7	CT	1,856,765	2,064,402	207,637	$430,646	$517,675	$87,029	$231.93	$243.22	$11.29	$0	$4,156	$4,156
8	DC	838,869	745,898	-92,971	$63,859	$39,660	$-24,199	$76.13	$49.68	$-26.45	$0	$0	$0
9	DE	446,623	431,785	-14,838	$92,914	$125,175	$32,261	$208.04	$279.66	$71.62	$0	$0	$0
10	FL	8,580,752	8,576,407	-4,345	$2,612,205	$2,677,123	$64,918	$304.42	$303.43	$-0.99	$28,825	$36,883	$8,058
11	GA	3,501,837	3,589,190	87,353	$1,067,052	$1,136,989	$69,937	$304.71	$299.21	$-5.50	$22,837	$70,736	$47,899
12	HI	664,306	654,884	-9,422	$158,349	$167,036	$8,687	$238.37	$246.48	$8.11	$0	$0	$0
13	IA	1,431,236	1,651,735	220,499	$283,409	$498,488	$215,079	$198.02	$284.36	$86.34	$5,167	$109,286	$104,119
14	ID	533,153	559,733	26,580	$151,488	$202,554	$51,066	$284.13	$351.83	$67.70	$13,807	$26,145	$12,338
15	IL	6,942,181	7,492,597	550,416	$1,129,913	$1,569,174	$439,261	$162.76	$196.29	$33.53	$4,037	$52,030	$47,993
16	IN	2,963,481	3,358,178	394,697	$672,423	$999,616	$327,193	$226.91	$284.05	$57.15	$3,674	$37,890	$34,217
17	KS	1,379,908	1,529,319	149,411	$378,855	$525,155	$146,300	$274.55	$328.00	$53.44	$21,555	$71,794	$50,240
18	KY	1,754,734	2,105,710	350,976	$505,206	$754,945	$249,739	$287.91	$345.95	$58.04	$9,424	$70,909	$61,485
19	LA	2,101,558	2,335,609	234,051	$653,474	$780,117	$126,643	$310.95	$319.95	$9.00	$30,865	$51,503	$20,638
20	MA	3,804,245	4,131,345	327,100	$841,586	$742,687	$-98,898	$221.23	$173.52	$-47.71	$2	$1,017	$1,014
21	MD	3,005,368	3,004,849	-519	$600,756	$651,406	$50,651	$199.90	$208.94	$9.05	$0	$684	$684
22	ME	656,575	753,628	97,053	$208,828	$361,065	$152,237	$318.06	$468.74	$150.68	$3,978	$37,074	$33,096
23	MI	5,279,566	5,711,776	432,210	$1,174,340	$1,567,218	$392,878	$222.43	$261.23	$38.80	$11,950	$60,845	$48,895
24	MN	2,526,505	2,744,874	218,369	$537,069	$838,357	$301,287	$212.57	$290.53	$77.96	$7,637	$128,793	$121,156
25	MO	2,847,192	3,167,638	320,446	$733,287	$1,026,424	$293,137	$257.55	$310.80	$53.25	$64,047	$131,951	$67,904
26	MS	1,136,798	1,371,297	234,499	$390,221	$575,426	$185,205	$343.26	$403.96	$60.69	$13,058	$40,654	$27,596
27	MT	443,836	474,609	30,773	$134,928	$176,876	$41,948	$304.01	$336.03	$32.02	$10,331	$26,627	$16,296
28	NC	3,765,655	4,094,925	329,270	$1,103,919	$1,591,546	$487,626	$293.16	$376.03	$82.88	$23,845	$88,901	$65,056
29	ND	371,697	284,163	-87,534	$95,521	$103,871	$8,349	$256.99	$303.03	$46.04	$3,959	$24,042	$20,084
30	NE	889,112	962,395	73,283	$183,776	$281,082	$97,305	$206.70	$280.88	$74.19	$5,134	$40,497	$35,363
31	NH	665,406	640,716	-24,690	$220,496	$259,049	$38,554	$331.37	$391.04	$59.67	$4,287	$14,733	$10,446
32	NJ	5,279,728	4,951,663	-328,065	$1,011,526	$993,596	$-17,930	$191.59	$192.76	$1.17	$0	$6,290	$6,290
33	NM	792,240	856,968	64,728	$233,625	$332,197	$98,572	$294.90	$369.97	$75.08	$19,370	$35,822	$16,452
34	NV	881,666	864,632	-17,034	$167,511	$257,856	$90,345	$189.99	$286.43	$96.44	$2,853	$20,323	$17,470
35	NY	11,200,692	11,582,408	381,716	$2,772,452	$2,730,974	$-41,478	$247.52	$225.66	$-21.86	$8,163	$72,469	$64,305
36	OH	5,797,159	6,472,753	675,594	$1,254,193	$1,867,720	$613,527	$216.35	$275.51	$59.16	$2,357	$54,656	$52,299
37	OK	1,683,795	1,856,018	172,223	$465,938	$570,405	$104,467	$276.72	$288.51	$11.79	$24,821	$46,565	$21,743
38	OR	1,627,479	1,803,336	175,857	$431,065	$596,439	$165,374	$264.86	$312.31	$47.45	$10,881	$53,136	$42,255
39	PA	7,006,700	7,382,715	376,015	$1,420,985	$1,908,860	$487,875	$202.81	$246.03	$43.22	$1,571	$65,649	$64,078
40	RI	565,730	467,404	-98,326	$121,503	$124,487	$2,984	$214.77	$258.47	$43.70	$0	$0	$0
41	SC	1,787,175	1,973,304	186,129	$632,653	$813,619	$180,966	$354.00	$398.31	$44.31	$23,958	$80,780	$56,821
42	SD	363,087	403,904	40,817	$89,809	$150,913	$61,103	$247.35	$351.23	$103.88	$3,172	$24,550	$21,378
43	TN	2,702,754	2,955,600	252,846	$696,079	$1,093,644	$397,565	$257.54	$352.32	$94.78	$2,054	$82,973	$80,919
44	TX	9,726,537	10,319,712	593,175	$2,586,232	$2,638,593	$52,361	$265.89	$243.48	$-22.42	$89,633	$99,071	$9,439
45	UT	869,351	880,330	10,979	$166,200	$217,813	$51,613	$191.18	$236.58	$45.40	$1,082	$9,364	$8,282
46	VA	3,673,652	4,094,091	420,439	$898,306	$1,183,031	$284,725	$244.53	$275.35	$30.82	$3,548	$36,256	$32,708
47	VI	55,411	2,415	-52,996	$33,045	$1,921	$-31,124	$596.36	$789.24	$192.88	$12,561	$847	$-11,713
48	VT	305,499	282,049	-23,450	$116,197	$130,177	$13,981	$380.35	$457.63	$77.28	$3,657	$8,150	$4,493
49	WA	2,958,810	3,136,614	177,804	$694,666	$749,751	$55,085	$234.78	$225.63	$-9.15	$22,241	$74,228	$51,987

COMPARISON OF LOOP BCM2 STUDY AREA FACTOR
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($000)

OBS	ST-ID	USF LOOPS	PROXY LOOPS	DIFF(PX-ACT)	USF UNSEPP RR	PROXY UNSEPP RR	DIFF(PX-ACT)	ACTUAL CPL	PROXY CPL	DIFF(PX-ACT)	ACTUAL EXP ADJ	PROXY EXP ADJ	DIFF (PX-ACT)
50	WI	2,801,940	3,055,458	253,518	$627,808	$1,012,587	$384,779	$224.06	$319.27	$95.20	$7,692	$87,558	$79,866
51	WV	754,867	816,385	62,318	$261,734	$406,609	$144,874	$347.09	$487.66	$140.57	$9,033	$34,457	$25,424
52	WY	254,259	282,718	28,459	$91,537	$119,325	$27,788	$360.01	$361.56	$1.54	$4,069	$25,438	$21,369
		146,264,039	154,489,294	8,225,255	$35,322,940	$42,718,461	$7,395,522	$241.50	$276.51	$35.01	$690,093	$2,441,956	$1,751,863

COMPARISON OF LOOP BCM2 STUDY AREA FACTOR
TO ACTUAL USF DATA - 1995 PAYOUT
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($000)

CMC-NAME	USF LOOPS	PROXY LOOPS	DIFF(PX-ACT)	USF UNSEPP RR	PROXY UNSEPP RR
NO HOLD CO	3,831,866	4,678,868	847,002	$1,213,932	$2,811,945
ACE TELEPHONE ASSN	18,061	20,954	2,893	$5,004	$10,914
ALASKA POWER & TEL	2,935	5,365	2,430	$1,172	$5,605
ALL WEST COMM., INC.	3,070	2,370	-700	$991	$2,813
ALLTEL SERVICE CORP	1,151,105	1,512,102	360,997	$406,964	$747,434
AMERITECH	17,534,391	18,532,533	998,142	$3,193,622	$4,005,171
ARMSTRONG UTILITIES	16,427	22,726	6,299	$4,571	$15,978
ARVIG ENTERPRISES	17,767	18,367	600	$5,409	$11,882
BEEHIVE TELEPHONE	559	3,594	3,035	$603	$1,889
BELL ATLANTIC	18,404,310	18,291,171	-113,139	$3,651,235	$4,046,023
BELLSOUTH TELECOM.	19,286,095	20,183,566	897,471	$5,830,838	$6,424,625
BENKELMAN TELEPHONE	1,816	1,464	-352	$945	$629
BLACKFOOT TEL COOP	6,163	18,453	12,290	$3,058	$6,351
BREDA TELEPHONE CO	2,097	2,798	701	$701	$2,533
CAMERON TELEPHONE CO	9,854	13,242	3,388	$6,310	$13,482
CASCADE UTILITIES	10,393	14,129	3,736	$3,080	$9,317
CENTRAL UTAH TEL.	2,250	2,013	-237	$622	$1,463
CENTURY TEL ENT INC	422,892	526,260	103,368	$167,384	$291,620
CHESTER TELEPHONE CO	15,359	20,863	5,504	$3,646	$11,737
CINCINNATI BELL	840,285	969,364	129,079	$165,286	$217,885
CITIZEN UTILITIES CO	150,578	168,193	17,615	$63,036	$84,451
CLEAR LAKE INDEP TEL	6,572	6,352	-220	$1,584	$3,078

DIFF(PX-ACT)	ACTUAL CPL	PROXY CPL	DIFF(PX-ACT)	ACTUAL EXP ADJ	PROXY EXP ADJ	DIFF (PX-ACT)
$1,598,013	$316.80	$585.16	$268.36	$168,757	$946,484	$777,726
$5,910	$277.07	$523.98	$246.91	$262	$3,022	$2,760
$4,433	$399.34	$1,132.46	$733.13	$232	$2,672	$2,440
$1,822	$322.74	$1,165.58	$842.84	$103	$1,516	$1,413
$340,470	$353.54	$469.13	$115.59	$63,384	$177,009	$113,625
$811,549	$182.14	$208.78	$26.65	$0	$0	$0
$11,407	$278.25	$667.05	$388.80	$265	$6,288	$6,023
$6,473	$304.43	$630.59	$326.15	$252	$4,367	$4,115
$1,286	$1,079.43	$1,283.21	$203.78	$329	$971	$641
$394,788	$198.39	$211.39	$13.00	$4,222	$19,354	$15,132
$593,787	$302.33	$308.30	$5.97	$48,738	$23,492	$-25,247
$-315	$520.10	$438.12	$-81.98	$308	$119	$-189
$3,294	$496.13	$336.77	-159.36	$934	$334	$-600
$1,833	$334.08	$904.88	$570.79	$70	$1,213	$1,143
$7,172	$640.34	$1,004.08	$363.74	$2,559	$6,815	$4,256
$6,238	$296.33	$629.33	$333.00	$150	$3,424	$3,274
$841	$276.51	$641.65	$365.14	$43	$587	$544
$124,236	$395.81	$535.34	$139.53	$40,884	$94,081	$53,197
$8,090	$237.41	$547.29	$309.88	$0	$3,625	$3,625
$52,599	$196.70	$218.01	$21.31	$0	$979	$979
$21,416	$418.63	$503.64	$85.02	$14,305	$21,290	$6,984
$1,493	$241.08	$475.84	$234.77	$1	$735	$734

COMPARISON OF LOOP BCM2 STUDY AREA FACTOR
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FIELDS: LOOPS, COSTS & USF EXPENSE ADJUSTMENTS
($000)

CMC-NAME	USF LOOPS	PROXY LOOPS	DIFF(PX-ACT)	USF UNSEPP RR	PROXY UNSEPP RR
COLONIAL TEL COMPANY	3,239	7,689	4,450	$1,303	$9,130
CRAW-KAN TELEPHONE	14,607	17,871	3,264	$4,013	$9,064
CROSS TEL CO	10,159	17,164	7,005	$4,798	$9,275
DELL TELEPHONE CO-OP	883	1,837	954	$2,610	$2,955
DOBSON TEL CO	10,899	15,938	5,039	$6,683	$9,220
DUNKIRK & FREDONIA	10,858	8,415	-2,443	$1,566	$4,043
E. RITTER COMM. INC.	9,657	13,434	3,777	$3,475	$10,281
E.N.M.R. TEL. COOP.	10,817	11,917	1,100	$7,979	$6,551
ECKLES UTILITIES CO	11,507	13,104	1,597	$2,792	$6,994
EMPIRE TEL CORP	11,505	12,984	1,479	$4,140	$9,250
FAIL INC	13,201	19,109	5,908	$3,151	$13,173
FARMERS MUTUAL TEL	4,009	5,047	1,038	$1,140	$4,221
FIDELITY TELEPHONE	12,826	17,594	4,768	$4,075	$8,746
FILER MUTUAL TEL.	2,423	3,183	760	$714	$3,871
FRONTIER CORP	882,157	987,886	105,729	$195,824	$319,379
GENESEO TELEPHONE CO	10,147	12,638	2,491	$2,433	$6,458
GOLDEN WEST TELECOMM	20,699	25,491	4,792	$7,955	$14,796
GRAND RIVER MUTUAL	20,277	21,755	1,478	$6,170	$9,518
GREAT PLAINS COMM.	25,918	28,410	2,492	$8,933	$18,943
GREEN HILLS TEL CORP	3,274	4,079	805	$1,231	$4,348
GTE CORPORATION	15,579,984	18,094,700	2,514,716	$4,720,543	$5,981,986
HAT ISLAND TELEPHONE	9,637	2,940	-6,697	$4,603	$1,240

DIFF(PX-ACT)	ACTUAL CPL	PROXY CPL	DIFF(PX-ACT)	ACTUAL EXP ADJ	PROXY EXP ADJ	DIFF (PX-ACT)
$7,828	$402.18	$1,180.37	$778.19	$360	$4,948	$4,588
$5,051	$274.74	$482.82	$208.08	$71	$2,444	$2,373
$4,478	$472.24	$553.25	$81.00	$1,357	$2,772	$1,414
$345	$2,955.87	$1,267.45	-1688.4	$1,763	$1,739	$-24
$2,537	$613.22	$599.20	$-14.02	$2,608	$3,009	$400
$2,477	$144.20	$416.67	$272.47	$0	$947	$947
$6,806	$359.81	$756.83	$397.02	$517	$4,383	$3,865
$-1,427	$737.61	$540.68	-196.94	$3,599	$2,151	$-1,448
$4,202	$242.63	$517.47	$274.84	$18	$1,965	$1,947
$5,110	$359.88	$698.12	$338.24	$581	$3,725	$3,144
$10,022	$238.70	$681.52	$442.83	$0	$5,171	$5,171
$3,081	$284.35	$826.83	$542.48	$31	$1,924	$1,893
$4,671	$317.72	$495.88	$178.16	$346	$2,202	$1,856
$3,157	$294.86	$1,417.30	1122.44	$59	$2,085	$2,026
$123,555	$221.99	$310.14	$88.16	$2,684	$54,468	$51,784
$4,025	$239.73	$507.62	$267.89	$0	$1,680	$1,680
$6,842	$384.29	$558.82	$174.53	$1,400	$4,755	$3,355
$3,348	$304.29	$435.02	$130.73	$367	$1,828	$1,461
$10,011	$344.65	$659.51	$314.86	$1,054	$7,205	$6,151
$3,117	$376.05	$1,040.87	$664.82	$201	$2,260	$2,059
$1,261,442	$302.99	$318.85	$15.86	$188,656	$393,605	$204,949
$-3,363	$477.63	$304.43	-173.19	$1,326	$194	$-1,132

COMPARISON OF LOOP BCM2 STUDY AREA FACTOR
TO ACTUAL USF DATA - 1995 PAYOUT
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($000)

CMC-NAME	USF LOOPS	PROXY LOOPS	DIFF(PX-ACT)	USF UNSEPP RR	PROXY UNSEPP RR
HECTOR COMM CORP	6,056	6,680	624	$2,261	$3,917
HOME TEL CO OF NE	1,194	988	-206	$378	$1,109
HUNTEL SYSTEMS	10,547	13,703	3,156	$4,084	$9,973
I T C	15,411	20,945	5,534	$3,456	$10,423
IAMO TELEPHONE	1,529	2,319	790	$574	$2,098
INLAND TELEPHONE CO	2,241	4,665	2,424	$1,425	$4,973
INTERSTATE TELECOMM.	8,590	11,946	3,356	$2,575	$7,595
INTERSTATE 35 TEL CO	1,686	3,070	1,384	$608	$2,618
KANOKLA TEL. ASSOC.	3,367	4,625	1,258	$1,774	$3,207
KASSON & MANTORVILE	2,858	4,052	1,194	$679	$2,137
LARSON UTILITIES INC	2,074	1,509	-565	$595	$1,001
LAVACA TELPHONE CO.	2,607	3,974	1,367	$619	$2,860
LINCOLN TEL. & TELE.	243,125	262,200	19,075	$46,803	$72,763
LOW COUNTRY TEL. CO.	42,358	24,630	-17,728	$14,294	$9,587
LOWRY TELEPHONE CO	1,170	1,021	-149	$347	$1,133
LYNCH TEL. CORP.	10,724	14,256	3,532	$7,694	$11,134
MABEL COOP. TEL. CO.	1,592	1,607	15	$550	$1,394
MANKATO CITIZENS TEL	40,191	38,958	-1,233	$9,542	$15,936
MCCOOK COOPERATIVE	1,274	2,131	857	$460	$2,512
METAMORA TEL. CO.	6,651	10,189	3,538	$1,579	$5,115
MID-SOUTH TELECOM	5,865	6,777	912	$1,941	$5,781
MIDSTATE TELEPHONE	1,531	1,680	149	$412	$737

DIFF(PX-ACT)	ACTUAL CPL	PROXY CPL	DIFF(PX-ACT)	ACTUAL EXP ADJ	PROXY EXP ADJ	DIFF (PX-ACT)
$1,656	$373.32	$570.66	$197.34	$388	$1,296	$908
$731	$316.44	$1,073.53	$757.10	$26	$583	$557
$5,889	$387.24	$700.11	$312.87	$774	$4,052	$3,278
$6,967	$224.23	$490.67	$266.44	$0	$2,625	$2,625
$1,525	$375.17	$892.00	$516.83	$93	$992	$898
$3,548	$635.93	$1,273.76	$637.83	$574	$2,504	$1,930
$5,020	$299.72	$638.73	$339.01	$96	$2,705	$2,609
$2,010	$360.55	$838.85	$478.29	$87	$1,196	$1,109
$1,432	$526.98	$682.58	$155.60	$588	$1,257	$669
$1,459	$237.41	$518.87	$281.46	$0	$600	$600
$405	$287.10	$735.84	$448.73	$38	$368	$331
$2,241	$237.41	$721.93	$484.52	$0	$1,186	$1,186
$25,960	$192.51	$270.67	$78.16	$0	$0	$0
$-4,707	$337.45	$371.76	$34.31	$1,588	$1,200	$-388
$787	$296.44	$1,040.74	$744.29	$34	$597	$563
$3,440	$717.42	$749.45	$32.03	$3,505	$4,730	$1,225
$844	$345.38	$864.03	$518.66	$65	$657	$592
$6,394	$237.41	$373.22	$135.81	$0	$3,535	$3,535
$2,052	$361.11	$1,115.78	$754.66	$69	$1,350	$1,281
$3,536	$237.41	$484.51	$247.10	$0	$1,265	$1,265
$3,840	$330.93	$769.27	$438.34	$385	$2,640	$2,255
$325	$269.03	$334.59	$65.56	$9	$164	$155